

ETSI/TC SMG

Released by : ETSI/PT 12

Release date: February 1992

RELEASE NOTE

Recommendation GSM 08.54

BSC - BTS: Layer 1 Structure of Physical Circuits

Previously distributed version : 3.0.0 (Updated Release 1/90)
New Released version February 92 : 3.0.1 (Release 92, Phase 1)

1. Reason for changes

Only pagenummering/layout/etc. has been changed since the previously distributed version.

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ETSI-GSM
Technical
Specification

GSM 08.54

Version 3.0.1

UDC: 621.396.21

Key words: European Digital Cellular Telecommunications System, Global System for Mobile Communications (GSM)

BSC - BTS:
Layer 1
Structure of Physical Circuits

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PREFATORY NOTE

ETSI has constituted stable and consistent documents which give specifications for the implementation of the European Cellular Telecommunications System. Historically, these documents have been identified as "GSM recommendations".

Some of these recommendations may subsequently become Interim European Telecommunications Standards (I-ETTs) or European Telecommunications Standards (ETTs), whilst some continue with the status of ETSI-GSM Technical Specifications. These ETSI-GSM Technical Specifications are for editorial reasons still referred to as GSM recommendations in some current GSM documents.

The numbering and version control system is the same for ETSI-GSM Technical Specifications as for "GSM recommendations".

ETSI/GSM

GSM Recommendation 08.54

Version 3.0.1

Title: Base Station Controller (BSC) to Base Transceiver Station (BTS)
Interface

Layer 1 : Structure of Physical Circuits

Date: February 1992

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Original Language: English

Number of Pages: 3

0. SCOPE

The use and general aspects of the A-bis interface are given in recommendation GSM 08.51.

This recommendation defines the structure of the physical layer (layer 1) of the BSC - BTS/TRX interface for supporting traffic channels and control channels. Use of the physical layer for supporting link protocol is covered in GSM recommendation 08.56.

The physical layer is the lowest layer in the OSI Reference Model and it supports all functions required for transmission of bit streams on the physical medium.

For this recommendation only digital transmission will be considered, the use of analogue transmission is a national concern.

1. LAYER 1 SPECIFICATION

All the CCITT recommendations referred to are Red Book.

Layer 1 shall utilize digital transmission at a rate of 2048 kbit/sec with a frame structure of 32 * 64 kbit/sec time slots, as specified in CCITT recommendation G705 section 3 or at a rate of 64 kbit/sec.

The physical/electrical characteristics are defined in CCITT recommendation G703.

Synchronization at the BTS/TRX for the transmitted bit stream toward the BSC shall be derived from the received bit stream from the BSC.

For transmission rate at 64 kbit/sec it shall be an interface as defined in CCITT recommendation G703.

For transmission rate at 2048 kbit/sec the functional characteristics are defined in CCITT recommendation G732 section 2 and 3, and fault conditions should be treated in accordance with CCITT recommendation G732 section 4.

The idle pattern must be transmitted on every timeslot that is not assigned to a channel, and to every timeslot of a channel that is not allocated to a call. The idle pattern shall be 01010100 for a 64 kbit/sec channel and the 2-bit pattern 01 for 16 kbit/sec channels.

If transcoders are located in BTS speech encoding shall be the A-law as defined in CCITT recommendation G711.

If speech transcoders are located in the BSC the speech, data and signalling channels will utilize either a transmission rate of 16 kbit/sec or 64 kbit/sec according to GSM recommendation 08.60. They shall be rate adapted or multiplexed according to CCITT recommendation I.460 with fixed format, to fit into the physical interface.

Data encoding is covered in GSM recommendations 08.20.

In the case of a 2048 kbit/sec circuit, multidrop solutions should be possible. Dynamic sharing of terrestrial 64 kbit/sec channels between BTS:s on a per-call basis must not be used.

